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During the last convocation week, Professor G. A. Miller was elected vice president of the American Mathematical Society, chairman of the Chicago Section of this Society, and secretary of Section A of the American Association for the Advancement of Science. The last position is for five years, while the other two are for one year only.

BOOKS.

Irrational Numbers and their Representation by Sequences and Series. By Henry Parker Manning, Ph. D., Assistant Professor of Pure Mathematics in Brown University. 12mo. Cloth, vi+123 pages. Price, $1.25. New York: John Wiley & Sons.

In this book, the author has given an explanation of irrational numbers and those parts of algebra which depend on the Theory of Limits. An *irrational number* is defined by the position it occupies among rational numbers, the definition given by Dedekind.

The book contains five chapters, of which the first deals with Irrational Numbers; the second, Sequences; the third, Series; the fourth, Power Series; and the fifth, the Exponential, Binomial, and Logarithmic Series.

The work will prove very helpful to all teachers of mathematics who wish to know something of the modern views of irrational numbers and series. F.

Introduction to Higher Algebra. By Maxime Bôcher, Professor of Mathematics in Harvard University. Prepared for publication with the cooperation of E. P. R. Duval, Instructor in Mathematics in the University of Wisconsin. 8vo. Cloth, xi+321 pages. Price, $2.00. New York: The Macmillan Co.

The object of this book is to "introduce the student to higher algebra in such a way that he shall, on the one hand, learn what is meant by a proof in algebra and acquaint himself with the proofs of the most fundamental facts, and, on the other, become familiar with many important results of algebra which are new to him."

The book contains twenty-two chapters. Some notion of what the work contains may be gained from the subject treated under each of the chapters. Chapter I treats of Polynomials and their most Fundamental Properties; Chapter II, a Few Properties of Determinants; Chapter III, The Theory of Linear Dependence; Chapter IV, Linear Equations; Chapter V, Some Theorems concerning the Rank of a Matrix; Chapter VI, Linear Transformations and the Combination of Matrices; Chapter VII, Invariants,—First Principles and Forms; Chapter VIII, Bilinear Forms; Chapter IX, Geometric Introduction to the Study of Quadratic Forms; Chapter X, Quadratic Forms; Chapter XI, Real Quadratic Forms; Chapter XII, The System of a Quadratic Form and One or More Linear Forms; Chapter XIII, Pairs of Quadratic Forms; Chapter XIV, Some Properties of Polynomials in General; Chapter XV, Factors and Common Factors of Polynomials in One Variable and of Binary Forms; Chapter XVI, Factors of Polynomials in Two or More Variables; Chapter XVII, General Theorems on Integral Rational Invariants; Chapter XVIII, Symmetric Polynomials; Chapter XIX, Polynomials Symmetric in Pairs of Variables; Chapter XX, Elementary Divisors and the Equivalence of λ-Matrices; Chapter XXI, The Equivalence and Classification of Pairs of Bilinear Forms and Collineations; Chapter XXII, The Equivalence and Classification of Pairs of Quadratic Forms.

While, in the reading of this book, no algebraic knowledge is presupposed beyond a familiarity with elementary algebra up to and including quadratics, yet familiarity with some of the higher branches of mathematics, as Analytical Geometry and the Calculus, is essential to understand and master it. The work, as its name implies, is a splendid introduction not only to algebra alone, but to a general course in mathematics. F.

Plane and Spherical Trigonometry. By A. H. Buchanan, LL. D., Professor of Mathematics, Cumberland University. 8vo. Cloth, v+96 pages, 33 figures. Price, $1.00. New York: John Wiley & Sons.

This book aims to comprise about all of trigonometry that is required in most colleges for the A. B. degree. Some of the demonstrations of principles differ slightly from those usually given. The tables are bound in a separate volume. The book, from the printer's stand point, is well gotten up. F.

A Course in Mathematics For Students in Engineering and Applied Science. By Frederick S. Woods and Frederick H. Bailey, Professors of Mathematics in the Massachusetts Institute of Technology. Vol. I. Algebraic Equations, Functions of One Variable, Analytic Geometry, Differential Calculus. 8vo. Cloth, xii+385 pages. Price, $2.00. Boston and Chicago: Ginn & Co.

This book, an entirely new venture, is the first volume of a course in mathematics designed to present in a somewhat more closely connected manner, an amount of mathematical material usually given in distinct courses under the subjects of Algebra, Analytical Geometry, Differential Calculus, and Differential Equations, and covers the work usually required of students in the first two years in colleges and engineering schools. It is believed that such a presentation of the subject will give the student a better grasp of mathematics as a whole. The results of this method of presenting mathematics will be watched with great interest by teachers of mathematics. The book is well gotten up and the material is well arranged and well selected. F.

The Metric and British Systems of Weights, Measures, and Coinage. By F. Mollwo Perkin, Ph. D., Head of Chemistry Department, Borough Polytechnic Institute, London. With Seventeen Diagrams. 8vo. Cloth, 83 pages. Price, 50 cents. London: Whittaker & Co. New York: The Macmillan Co.

This little book will be found of great value in the hands of students studying Chemistry, Physics, Engineering, or General Elementary Science.

In the introduction, the author makes a plea for the use and introduction of the metric system in the British Empire. In several tables of length, area, solid contents, etc., conversion tables are given. Also a chapter on specific gravities is inserted. F.

Integration by Trigonometric and Imaginary Substitution. By Charles O. Gunther, M. E., Assistant Professor of Mathematics and Mechanics in Stevens Institute of Technology, with an Introduction by J. Burkett Webb, C. E., Professor of Mathematics and Mechanics in Stevens Institute of Technology. 8vo. Cloth, vi+79 pages. Price, $1.25. New York: D. Van Nostrand Co.

In this little book the author, by means of what he calls the "Triangle Method," eliminates the *Reduction Formulae.* The student, by the use of this method, becoming practically independent of reduction formulae and tables of integrals. The method is worthy the attention of writers on the Integral Calculus. F.